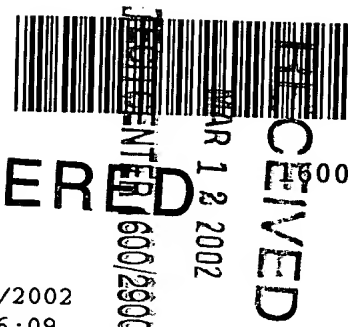


Paper No. 9



1653

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/817,487A

DATE: 02/28/2002

TIME: 13:26:09

Input Set : A:\Sequence Listing.ST25.txt

Output Set: N:\CRF3\02282002\I817487A.raw

3 <110> APPLICANT: Novartis AG
 5 <120> TITLE OF INVENTION: Selectable Marker Genes
 7 <130> FILE REFERENCE: 4-31193A
 C--> 9 <140> CURRENT APPLICATION NUMBER: US/09/817,487A
 C--> 9 <141> CURRENT FILING DATE: 2002-02-14
 9 <160> NUMBER OF SEQ ID NOS: 10
 11 <170> SOFTWARE: PatentIn version 3.0
 13 <210> SEQ ID NO: 1
 14 <211> LENGTH: 2607
 15 <212> TYPE: DNA
 16 <213> ORGANISM: homo sapiens
 18 <400> SEQUENCE: 1
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 23 gttgaagaag tggctacttt catgtgtgca gtggaatcct acccccagcc tgagatttcc 180
 25 tggactagaa ataaaaattct cattaaaactc tttgacaccc ggtacagcat ccgggagaat 240
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 29 gccacaatg gtgtgggagg agctgtggag agttgtggag ccctgcaagt gaagatgaaa 360
 31 cctaaaaataa ctgctcctcc cataaatgtg aaaataatag agggattaaa agcagtccta 420
 33 ccatgtacta caatgggttaa tcccaaacca tcagtgtctt ggataaaggg agacagccct 480
 35 ctcagggaaa attcccgaat tgcagttctt gaatctggga gcttgaggat tcataacgta 540
 37 caaaagggaag atgcaggaca gtatcgatgt gtggcaaaaa acagcctcgg gacagcatat 600
 39 tccaaagtgg tgaagctgga atttgagggt tttgccagga tcttgccggc tctgaatcc 660
 41 cacaatgtca cctttggctc ctttgtgacc ctgcaactgta cagcaacagg cattcctgtc 720
 43 cccaccatca cctggattga aaacggaaat gctgtttctt ctgggtccat tcaagagagt 780
 45 gtgaaagacc gagtgattga ctcaagactg cagctgttta tcaccaagcc aggactctac 840
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 49 atcagcatag cagaatggag taaaccacag aaagataaca aaggctactg cgcccagtac 960
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 65 aaaacattcc caccaatgac gtccctcaaag ccaagtgtgg acattccaaa tctgccttcc 1440
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 69 atgtccagct ttgcaatatt tgtgtctctt accataacta ctctctattg ctgccgaaga 1560
 71 agaaaacaat ggaaaaataa gaaaagagaa tcagcagcag taaccctcac cacactgcct 1620
 73 tctgagctct tactagatag acttcatccc aaccccatgt accagaggat gccgtcctt 1680
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83 ctattaggag tgtgtgctgt cggaagcca atgtgcctgc tctttgaata catggcctat 1980
85 ggtgacctca atgagttcct ccgcagcatg tccctcaca ccgtgtgcag cctcagtcac 2040
87 agtgacttgt ctatgagggc tcaggtctcc agccctgggc cccacccct ctctgtgct 2100
89 gagcagcttt gcattgccag gcaggtggca gctggcatgg cttacctctc agaacgtaag 2160
91 tttgttcacc gagatttagc caccaggaac tgcctggtag gcgagaacat ggtggtgaaa 2220
93 attgccgact ttggcctctc caggaacatc tactcagcag actactacaa agctaataa 2280
95 aacgacgcta tccctatccg ttggatgccca ccagagtcca tttttataa ccgctacac 2340
97 acagagtctg atgtgtgggc ctatggcgtg gtcctctggg agatcttctc ctatggcctg 2400
99 cagccctact atgggatggc ccatgaggag gtcatttact acgtgcgaga tggcaacatc 2460
101 ctctcctgcc ctgagaactg ccccgtaggag ctgtacaatc tcatgcgtct atgttgaggc 2520
103 aagctgcctg cagacagacc cagtttcacc agtattcacc gaattctgga acgcatgtgt 2580
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109 <211> LENGTH: 869
110 <212> TYPE: PRT
111 <213> ORGANISM: homo sapiens
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116 1 5 10 15
118 Ala Phe Ser Gly Thr Glu Lys Leu Pro Lys Ala Pro Val Ile Thr Thr
119 20 25 30
121 Pro Leu Glu Thr Val Asp Ala Leu Val Glu Glu Val Ala Thr Phe Met
122 35 40 45
124 Cys Ala Val Glu Ser Tyr Pro Gln Pro Glu Ile Ser Trp Thr Arg Asn
125 50 55 60
127 Lys Ile Leu Ile Lys Leu Phe Asp Thr Arg Tyr Ser Ile Arg Glu Asn
128 65 70 75 80
130 Gly Gln Leu Leu Thr Ile Leu Ser Val Glu Asp Ser Asp Asp Gly Ile
131 85 90 95
133 Tyr Cys Cys Thr Ala Asn Asn Gly Val Gly Gly Ala Val Glu Ser Cys
134 100 105 110
136 Gly Ala Leu Gln Val Lys Met Lys Pro Lys Ile Thr Arg Pro Pro Ile
137 115 120 125
139 Asn Val Lys Ile Ile Glu Gly Leu Lys Ala Val Leu Pro Cys Thr Thr
140 130 135 140
142 Met Gly Asn Pro Lys Pro Ser Val Ser Trp Ile Lys Gly Asp Ser Pro
143 145 150 155 160
145 Leu Arg Glu Asn Ser Arg Ile Ala Val Leu Glu Ser Gly Ser Leu Arg
146 165 170 175
148 Ile His Asn Val Gln Lys Glu Asp Ala Gly Gln Tyr Arg Cys Val Ala
149 180 185 190
151 Lys Asn Ser Leu Gly Thr Ala Tyr Ser Lys Val Val Lys Leu Glu Phe
152 195 200 205
154 Glu Val Phe Ala Arg Ile Leu Arg Ala Pro Glu Ser His Asn Val Thr
155 210 215 220
157 Phe Gly Ser Phe Val Thr Leu His Cys Thr Ala Thr Gly Ile Pro Val
158 225 230 235 240
160 Pro Thr Ile Thr Trp Ile Glu Asn Gly Asn Ala Val Ser Ser Gly Ser

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DATE: 02/28/2002

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Input Set : A:\Sequence Listing.ST25.txt

Output Set: N:\CRF3\02282002\I817487A.raw

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163 Ile Gln Glu Ser Val Lys Asp Arg Val Ile Asp Ser Arg Leu Gln Leu
164                               260                               265                               270
166 Phe Ile Thr Lys Pro Gly Leu Tyr Thr Cys Ile Ala Thr Asn Lys His
167                               275                               280                               285
169 Gly Glu Lys Phe Ser Thr Ala Lys Ala Ala Ala Thr Ile Ser Ile Ala
170                               290                               295                               300
172 Glu Trp Ser Lys Pro Gln Lys Asp Asn Lys Gly Tyr Cys Ala Gln Tyr
173 305                               310                               315                               320
175 Arg Gly Glu Val Cys Asn Ala Val Leu Ala Lys Asp Ala Leu Val Phe
176                               325                               330                               335
178 Leu Asn Thr Ser Tyr Ala Asp Pro Glu Glu Ala Gln Glu Leu Leu Val
179                               340                               345                               350
181 His Thr Ala Trp Asn Glu Leu Lys Val Val Ser Pro Val Cys Arg Pro
182                               355                               360                               365
184 Ala Ala Glu Ala Leu Leu Cys Asn His Ile Phe Gln Glu Cys Ser Pro
185                               370                               375                               380
187 Gly Val Val Pro Thr Pro Ile Pro Ile Cys Arg Glu Tyr Cys Leu Ala
188 385                               390                               395                               400
190 Val Lys Glu Leu Phe Cys Ala Lys Glu Trp Leu Val Met Glu Glu Lys
191                               405                               410                               415
193 Thr His Arg Gly Leu Tyr Arg Ser Glu Met His Leu Leu Ser Val Pro
194                               420                               425                               430
196 Lys Cys Ser Lys Leu Pro Ser Met His Trp Asp Pro Thr Ala Cys Ala
197                               435                               440                               445
199 Arg Leu Pro His Leu Asp Tyr Asn Lys Glu Asn Leu Lys Thr Phe Pro
200                               450                               455                               460
202 Pro Met Thr Ser Ser Lys Pro Ser Val Asp Ile Pro Asn Leu Pro Ser
203 465                               470                               475                               480
205 Ser Ser Ser Ser Ser Phe Ser Val Ser Pro Thr Tyr Ser Met Thr Val
206                               485                               490                               495
208 Ile Ile Ser Ile Met Ser Ser Phe Ala Ile Phe Val Leu Leu Thr Ile
209                               500                               505                               510
211 Thr Thr Leu Tyr Cys Cys Arg Arg Arg Lys Gln Trp Lys Asn Lys Lys
212                               515                               520                               525
214 Arg Glu Ser Ala Ala Val Thr Leu Thr Thr Leu Pro Ser Glu Leu Leu
215                               530                               535                               540
217 Leu Asp Arg Leu His Pro Asn Pro Met Tyr Gln Arg Met Pro Leu Leu
218 545                               550                               555                               560
220 Leu Asn Pro Lys Leu Leu Ser Leu Glu Tyr Pro Arg Asn Asn Ile Glu
221                               565                               570                               575
223 Tyr Val Arg Asp Ile Gly Glu Gly Ala Phe Gly Arg Val Phe Gln Ala
224                               580                               585                               590
226 Arg Ala Pro Gly Leu Leu Pro Tyr Glu Pro Phe Thr Met Val Ala Val
227                               595                               600                               605
229 Lys Met Leu Lys Glu Glu Ala Ser Ala Asp Met Gln Ala Asp Phe Gln
230                               610                               615                               620
232 Arg Glu Ala Ala Leu Met Ala Glu Phe Asp Asn Pro Asn Ile Val Lys
233 625                               630                               635                               640

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DATE: 02/28/2002

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Input Set : A:\Sequence Listing.ST25.txt

Output Set: N:\CRF3\02282002\I817487A.raw

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238 Tyr Met Ala Tyr Gly Asp Leu Asn Glu Phe Leu Arg Ser Met Ser Pro
239          660          665          670
241 His Thr Val Cys Ser Leu Ser His Ser Asp Leu Ser Met Arg Ala Gln
242          675          680          685
244 Val Ser Ser Pro Gly Pro Pro Pro Leu Ser Cys Ala Glu Gln Leu Cys
245          690          695          700
247 Ile Ala Arg Gln Val Ala Ala Gly Met Ala Tyr Leu Ser Glu Arg Lys
248 705          710          715          720
250 Phe Val His Arg Asp Leu Ala Thr Arg Asn Cys Leu Val Gly Glu Asn
251          725          730          735
253 Met Val Val Lys Ile Ala Asp Phe Gly Leu Ser Arg Asn Ile Tyr Ser
254          740          745          750
256 Ala Asp Tyr Tyr Lys Ala Asn Glu Asn Asp Ala Ile Pro Ile Arg Trp
257          755          760          765
259 Met Pro Pro Glu Ser Ile Phe Tyr Asn Arg Tyr Thr Thr Glu Ser Asp
260          770          775          780
262 Val Trp Ala Tyr Gly Val Val Leu Trp Glu Ile Phe Ser Tyr Gly Leu
263 785          790          795          800
265 Gln Pro Tyr Tyr Gly Met Ala His Glu Glu Val Ile Tyr Tyr Val Arg
266          805          810          815
268 Asp Gly Asn Ile Leu Ser Cys Pro Glu Asn Cys Pro Val Glu Leu Tyr
269          820          825          830
271 Asn Leu Met Arg Leu Cys Trp Ser Lys Leu Pro Ala Asp Arg Pro Ser
272          835          840          845
274 Phe Thr Ser Ile His Arg Ile Leu Glu Arg Met Cys Glu Arg Ala Glu
275          850          855          860
277 Gly Thr Val Ser Val
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281 <211> LENGTH: 20
282 <212> TYPE: DNA
283 <213> ORGANISM: homo sapiens
285 <400> SEQUENCE: 3
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289 <210> SEQ ID NO: 4
290 <211> LENGTH: 20
291 <212> TYPE: DNA
292 <213> ORGANISM: homo sapiens
294 <400> SEQUENCE: 4
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298 <210> SEQ ID NO: 5
299 <211> LENGTH: 42
300 <212> TYPE: DNA
301 <213> ORGANISM: homo sapiens
303 <400> SEQUENCE: 5
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RAW SEQUENCE LISTING

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Input Set : A:\Sequence Listing.ST25.txt

Output Set: N:\CRF3\02282002\I817487A.raw

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310 <213> ORGANISM: homo sapiens
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319 <213> ORGANISM: homo sapiens
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334 <210> SEQ ID NO: 9
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336 <212> TYPE: DNA
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340 cttccaaaag ctctgtcat cacc 24
343 <210> SEQ ID NO: 10
344 <211> LENGTH: 26
345 <212> TYPE: DNA
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348 <400> SEQUENCE: 10
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VERIFICATION SUMMARY

PATENT APPLICATION: US/09/817,487A

DATE: 02/28/2002

TIME: 13:26:10

Input Set : A:\Sequence Listing.ST25.txt
Output Set: N:\CRF3\02282002\I817487A.raw

L:9 M:270 C: Current Application Number differs, Replaced Current Application No
L:9 M:271 C: Current Filing Date differs, Replaced Current Filing Date